Mercury Monitoring Program: Sampling study helps identify mercury sources

Unless you look closely, you'd say Mike Abbott has found a great campsite in a remote area for his RV, where he can get a little R&R over the weekend. In reality, setting up this mobile monitoring station has become a common ritual for Abbott as he travels – not from campground to campground – but from one monitoring site to another.

Abbott works for Idaho National Laboratory as an environmental scientist. Using state-of-the-science equipment, he continuously samples the air, looking for mercury. In turn, he'll analyze this long-term data and try to figure out the mercury's point of origin.

"It's difficult to tell where the mercury is coming from, because there are a large number of mercury sources, and you don't really see differences in the isotopic concentrations and it's difficult to even measure that," said Abbot. "So, basically, we see mercury and there's a large number of sources and the wind blows in different directions all the time, so there's a big soup out there – it's basically a mixture of mercury from different sources. Now, one source can contribute more than the other, and that's what our interest is – trying to figure out who are the major contributors."

These days, Abbott has been doing a lot of monitoring around Salmon Falls Creek Reservoir. This remote region in southern Idaho, near the Nevada border, seems like an unlikely place for high concentrations of mercury.

"People become exposed to unsafe levels of mercury by generally ingesting fish that are contaminated with mercury," said Abbott. "And, the reason fish are a problem is if you're eating high-end predator fish, like Walleye, Large Mouth Bass – those are the fish at the top of the food chain that have been eating the littler fish, who have been eating the very small fish, who have been eating the phytoplankton – and so it builds up almost a factor of a million, and the term's called bioaccumulation."

This concern holds the attention of agencies and interest groups in Idaho, Nevada and Utah – as each seeks answers to questions before they decide what to do next. The problem is the nature of mercury itself.

“One of the problems with mercury is it’s a persistent contaminant,” said Abbot. “It’s not like many organic contaminants of concern that eventually degrade in the environment. Mercury is an element. It’s been here since day one, and it’s going to be here when we’re long gone.”

In addition to Abbott’s monitoring experience at INL and working with the state of Idaho, he’s taken samples and monitored mercury levels at Mount St. Helens and in Yellowstone National Park, resulting in more comprehensive data and a better understanding of the mercury issue.

“The data we collect is extremely important for people in this area. It’s probably the top priority issue for the Idaho Department of Environmental Quality,” said Abbott. “And, I think, it’s important for Idaho National Laboratory to be a technological resource to provide science solutions for regional issues – that people haven’t got figured out yet – that are challenging.”